

T3-00008

**Application Number:** T3-00008

**Scientific Score:** 60 or below

*Specific names of individuals and institutions are blacked out to preserve applicant confidentiality where possible.*

**Title:** [REDACTED] CIRM Scholars Program

### **Proposal Abstract as Submitted by Applicant**

We propose to create a pre-doctoral training program in stem cell biology at [REDACTED]. The theme of the training program is quantitative experimental and mathematical approaches to stem cell biology. The goal of this program is to train pre-doctoral students who will bring strong multidisciplinary and quantitative skills to the study of stem cell biology. The proposed program will fund a total of six students, starting with 3 students in the first year of the training program. The training program will involve the development of new graduate courses in stem cell biology and regenerative medicine, with both lecture and laboratory components. As part of developing these courses, the principal investigators will work with a major publisher to develop a new stem cell text. Additionally, all students in the training program will enroll in a course in mathematical modeling for biologists. All courseware developed for this training program will be made freely available on the Internet. The courses developed in the program will also be available to qualified upper division students in [REDACTED] highly diverse undergraduate life sciences majors. Although [REDACTED] is a new university it has already established research thrusts in cell, developmental and quantitative biology. [REDACTED] currently has four faculty members working in the area of stem cells and developmental cell biology, and new faculty searches in stem cell research are underway. We anticipate several additional hires in this area over the next three years. There is strong institutional commitment for this training program in the form of faculty hires, space and differential graduate student support. The training program builds upon the inter-disciplinary environment at [REDACTED] which fosters collaboration across science, engineering, and social sciences. The [REDACTED] CIRM Scholars program has strong linkages with stem cell programs at [REDACTED], thus leveraging resources across [REDACTED]. The stem cell training grant will be a major component of graduate student education at [REDACTED], serve as a conduit to recruit under-represented students to stem cell research, and increase understanding of the promise of stem cell therapies amongst individuals and communities in [REDACTED].

### **Benefit of this Program to California**

This program will benefit the people and the state of California by providing high-quality training in the scientific, clinical, social, and ethical aspects of stem cell research to the scientists and clinicians who will develop and apply future therapies in this rapidly emerging field.

### **Summary of Review**

This type III proposal from a new academic institution seeks to establish a pre-doctoral training program with an emphasis on mathematical modeling and use of stem cell biology to foster a systems-level approach to differentiation. A special component of the

program is the proposed development of a stem cell textbook that is likely to be of high quality and facilitate effective education. The academic structure is appropriate with a well-described multidisciplinary curriculum and well-planned mentoring of students. The program also proposes community events to educate the public. Great value was given to the prospect of recruiting graduate students from an educationally under-served region of California and providing opportunities for many potentially bright and driven students that would not otherwise be tapped into. However, the newness of the institution presents several weaknesses in the program. In particular, there is no record of accomplishment in stem cell research that might serve as a basis for growth. Mentioned support of non-resident students raises concern that qualified California residents might not be able to fill these slots. The program does not integrate basic research with medical applications; a course in regenerative medicine is proposed to cover the gap. The mathematical emphasis is considered important to stem cell research; however, only one required math course is mentioned, which is insufficient to adequately prepare students for meaningful computationally based research. The program is of limited scope and relies on collaborations with two relatively distant institutions to fulfill some of the program requirements. The extent of their involvement is unclear. The program director is a dean and previous professor at a well-regarded institution, and has the appropriate administrative stature to ensure commitment to the program. A co-director and advisory committee will assist in directing the program. The program identifies seven mentors; four of these have some basis for stem cell research. Two faculty members are just out of their postdoctoral training while two others have a long record of accomplishment with mentoring students. The program lacks a critical mass of investigators to make a meaningful training program in stem cell biology.

### **Overall Strengths and Weaknesses**

This application presents strengths in its proposal to develop a textbook in stem cell biology, to serve disadvantaged and minority students, and fill a needed gap in the mathematical approaches to stem cell biology. As a focus for the new institution, it will have considerable institutional commitment and attention. However, the limited number of faculty available and the lack of depth and accomplishment in stem cell biology weigh against these positive attributes.

### **Recommendations**

Not recommended for funding at this time.

	Pre	Post	Clinical	Total
Fellows Requested:	3-6	0	0	3-6
Fellows Recommended:	0	0	0	0

	Year 1	Total
Budget Requested:	\$ 138,260	\$ 692,894
Budget Recommended:	0	0

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